

The University of New Mexico Cancer Center

Founded by the New Mexico State Legislature (1972)

The Official Cancer Center of the State of New Mexico (2003)

A National Cancer Institute Designated Cancer Center (2005)



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Professor of Pathology and Medicine

Director and CEO, UNM Cancer Center



UNIVERSITY OF NEW MEXICO CANCER CENTER

Mission

To assure that *all* New Mexicans have access to world-class cancer treatment and benefit from advances in cancer research

The University of New Mexico Cancer Center

will provide outstanding cancer treatment,
conduct world-class research to discover the causes and
cures for cancer,
train the next generation of cancer healthcare professionals,
and overcome New Mexico's significant cancer health disparities
through community-based outreach programs.



UNM Cancer Center: One of The Nation's 66 National Cancer Institute Designated Cancer Centers

2005-2010:

Achieved NCI
Designation and
Federal Funding

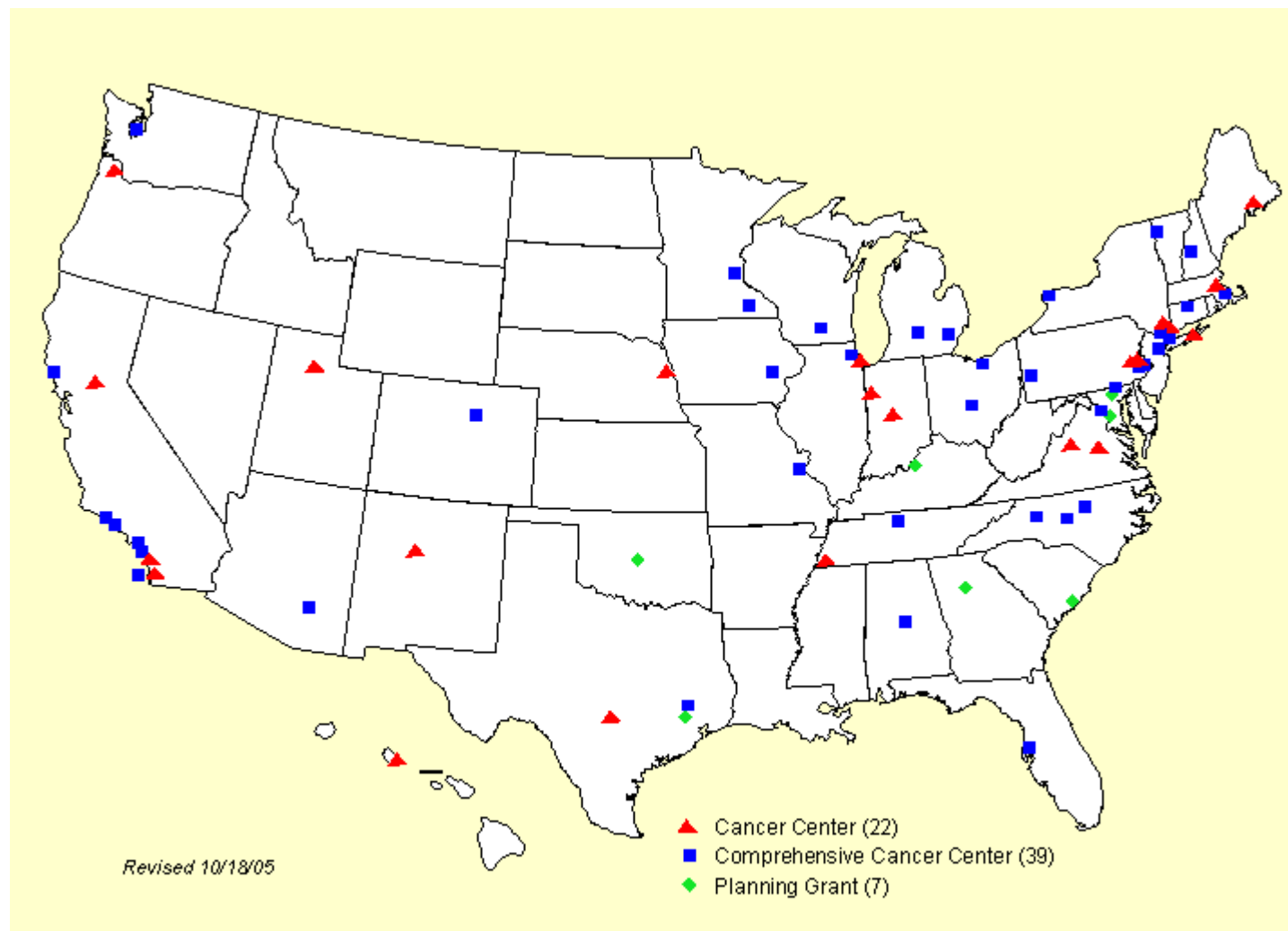
2010-2015:

Successful
Competitive Renewal

*“Excellent/
Outstanding”*

Fall 2014: Renewal Submission

NCI: Major Source of
Federal Funds for
Research, Community
Programs, New
Cancer Treatments



**UNM HSC: One of only 38 of the Nation's 126 Medical Schools with an
NCI-Designated Cancer Center and a Clinical/Translational Science Center**

FY13 Total Budgeted Revenues \$58.3 Million

Restricted:

**\$15,324,455: Restricted Revenues
(Grants with CC Code)**

**\$58,332,420: Total Research Funding
(NCI Report: UNM, LRRI, SNL, LANL, some NMSU
Chemistry Collaborations)**

Unrestricted:

\$34,460,599: Clinical Revenues

**\$1,000,000: Development
Income/Earnings**

\$5,823,908 : State Appropriations

RPSP: \$2,553,000

**Cigarette Tax: \$663,120 (1981)
\$2,487,520.00 (2003)**

Tobacco Settlement: \$135,000

\$1,7384,458: All Other Revenues



University of New Mexico Cancer Center

THE OFFICIAL CANCER CENTER OF THE STATE OF NEW MEXICO
A NATIONAL CANCER INSTITUTE DESIGNATED CANCER CENTER

UNM CANCER CENTER GROWTH 2000-2011

| Fiscal Year | 2000 | 2003 | 2007 | 2009 | 2010 | 2011 |
|----------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Total Revenue: | \$8.3 million | \$16.7 million | \$34.8 million | \$59.4 million | \$63.3 million | \$59.9 million |
| Patients Seen: | 2,500 | 5,500 | 7,600 | 11,000 | 15,888 | 15,742 |
| Ambulatory Clinic Visits: | 29,500 | 53,100 | 80,600 | 124,500 | 137,410 | 120,578 |
| Chemotherapy Infusions: | 3,897 | 6,089 | 9,297 | 11,290 | 12,335 | 14,141 |
| Radiation Treatments: | 16,235 | 18,477 | 18,624 | 18,801 | 19,440 | 16,984 |
| Uncompensated Care: | \$3.5 million | \$3.9 million | \$3.8 million | \$4.9 million | \$5.0 million | \$4.9 million |
| Board Certified Oncologists: | 18 | 24 | 73 | 85 | 85 | 85 |
| Research Faculty: | 59 | 77 | 120 | 125 | 126 | 126 |
| Patients from Bernalillo County: | 48% | 49% | 52% | 52% | 57% | 56% |
| Clinical Trial Enrollment: | 205 | 385 | 553 | 1,253 | 1,249 | 733 |
| Total Research Funding: | \$22.5 million | \$38.9 million | \$51.4 million | \$54.0 million | \$59.1 million | \$60.0 million |
| Charitable Income: | \$839,184 | \$1.5 million | \$2.6 million | \$10.8 million | \$6.3 million | \$2.5 million |

New Mexico

Rich Multiethnic Diversity Distinct Cancer Patterns

Population: 2,220,000

42% Hispanic

10% American Indian

5% Other Minorities

44% Non Hispanic White

Tremendous Disparity

Per Capita Income: 47th

Poverty: 18 - 36%

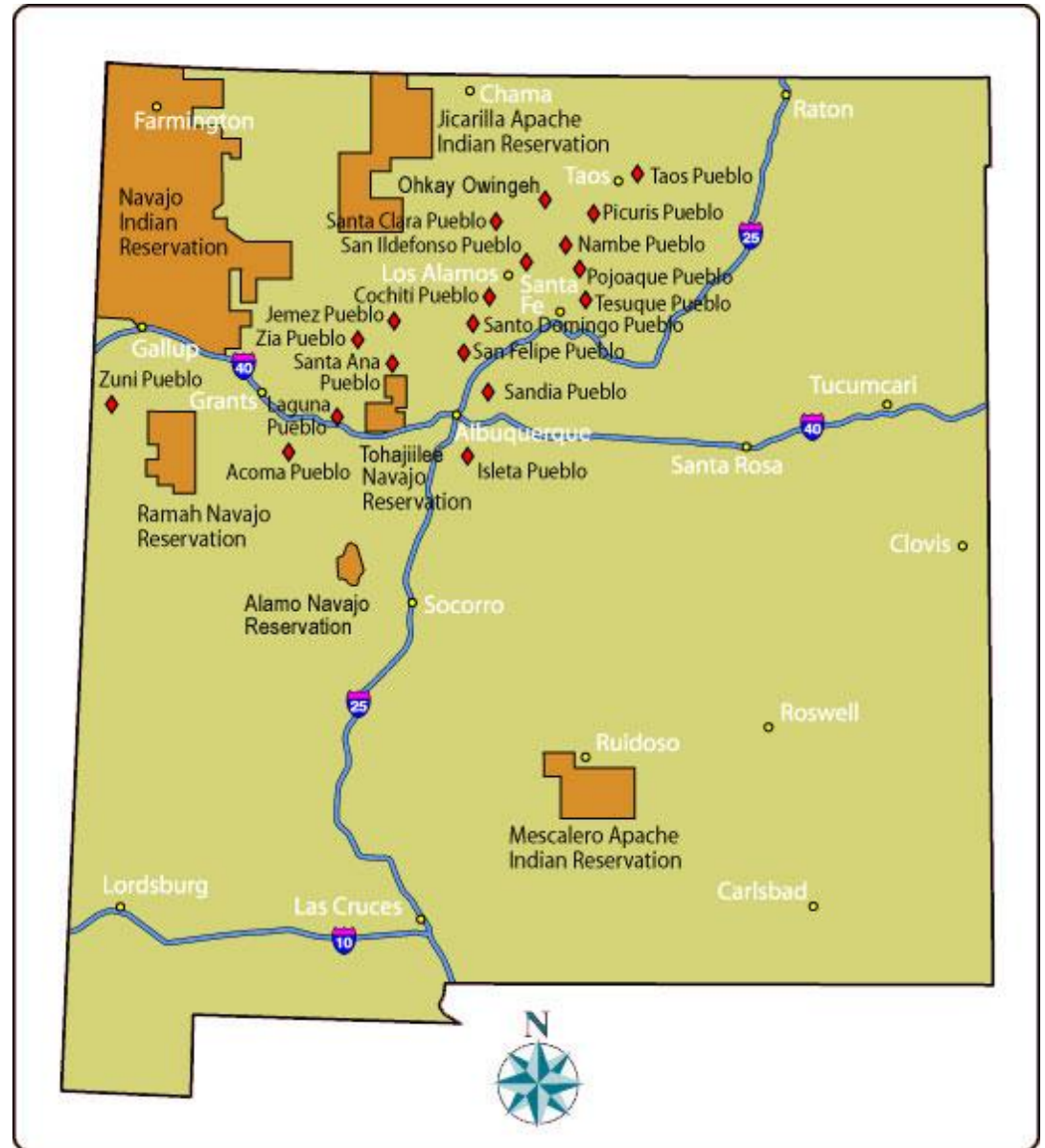
Uninsured: 22 - 32%

Advanced High Technology

Sandia and Los Alamos

National Laboratories

UNM Engineering



UNM Cancer Center Goals - Research

1. Conduct outstanding trans-disciplinary research in our laboratories, clinics, and multiethnic communities building upon unique institutional and regional scientific strengths and consortium partnerships.

Formal NCI Consortium Partners: Lovelace Respiratory Research Institute; Sandia National Laboratory; Los Alamos National Laboratory

128 Associated Faculty: \$60M in Annual Peer-Reviewed Funding

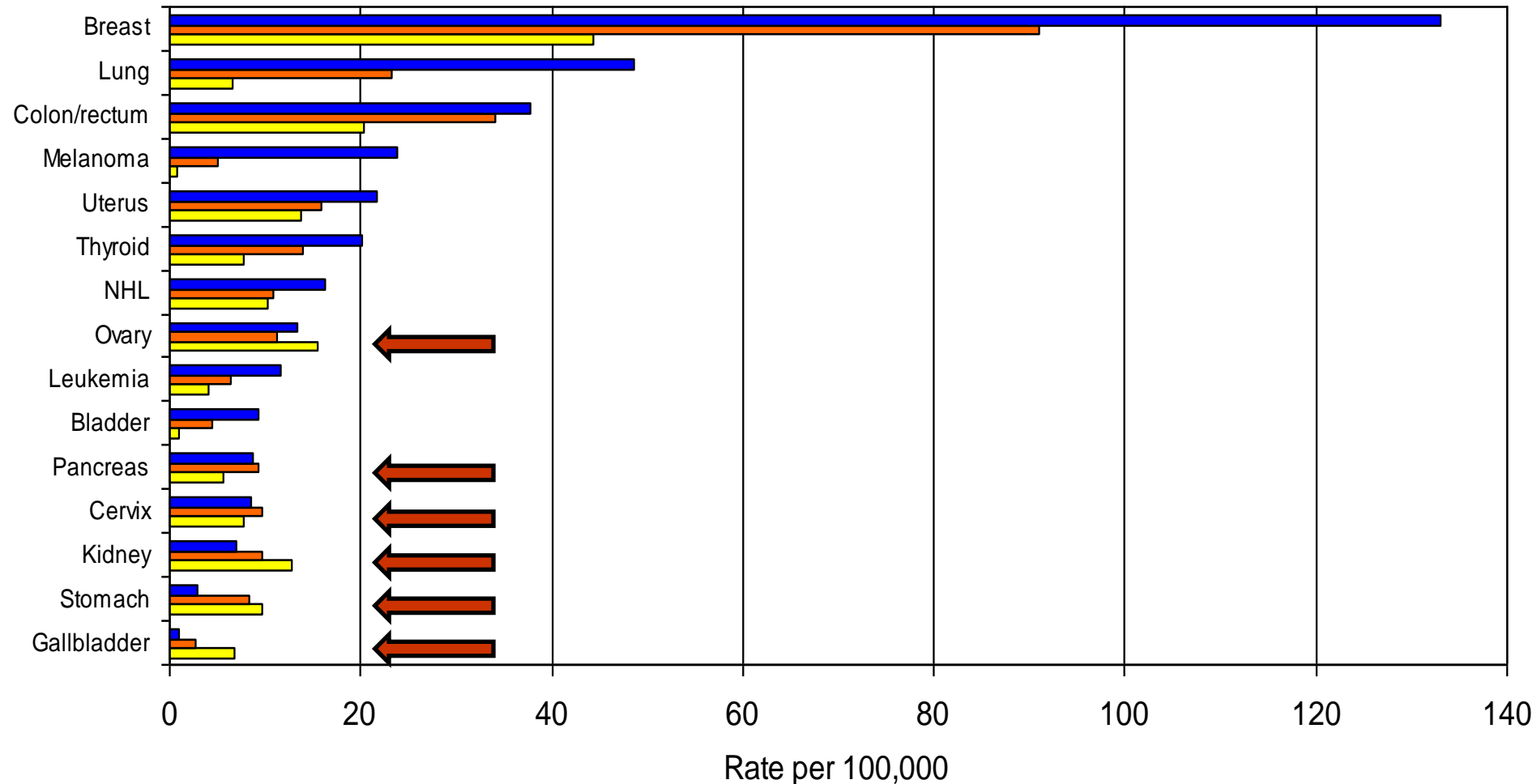
2. Reduce New Mexico's cancer burden by discovering the genetic, environmental, social, behavioral, and economic factors that contribute to the distinct patterns of cancer incidence, mortality, and disparity in our multiethnic populations.



Cancer Incidence Rates for the Most Common Sites

New Mexico Females, 1997-2006

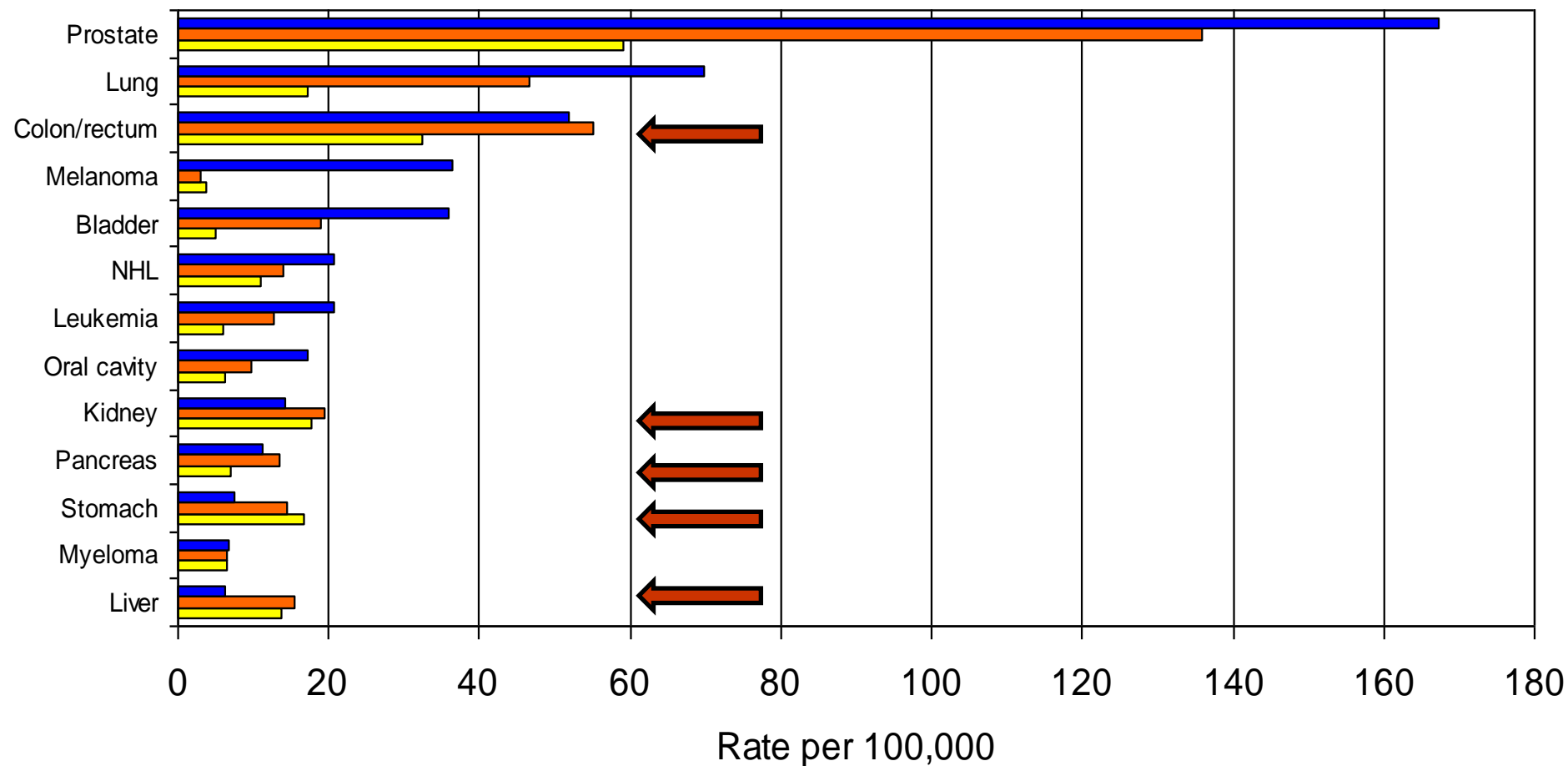
■ American Indian ■ Hispanic ■ Non-Hispanic White



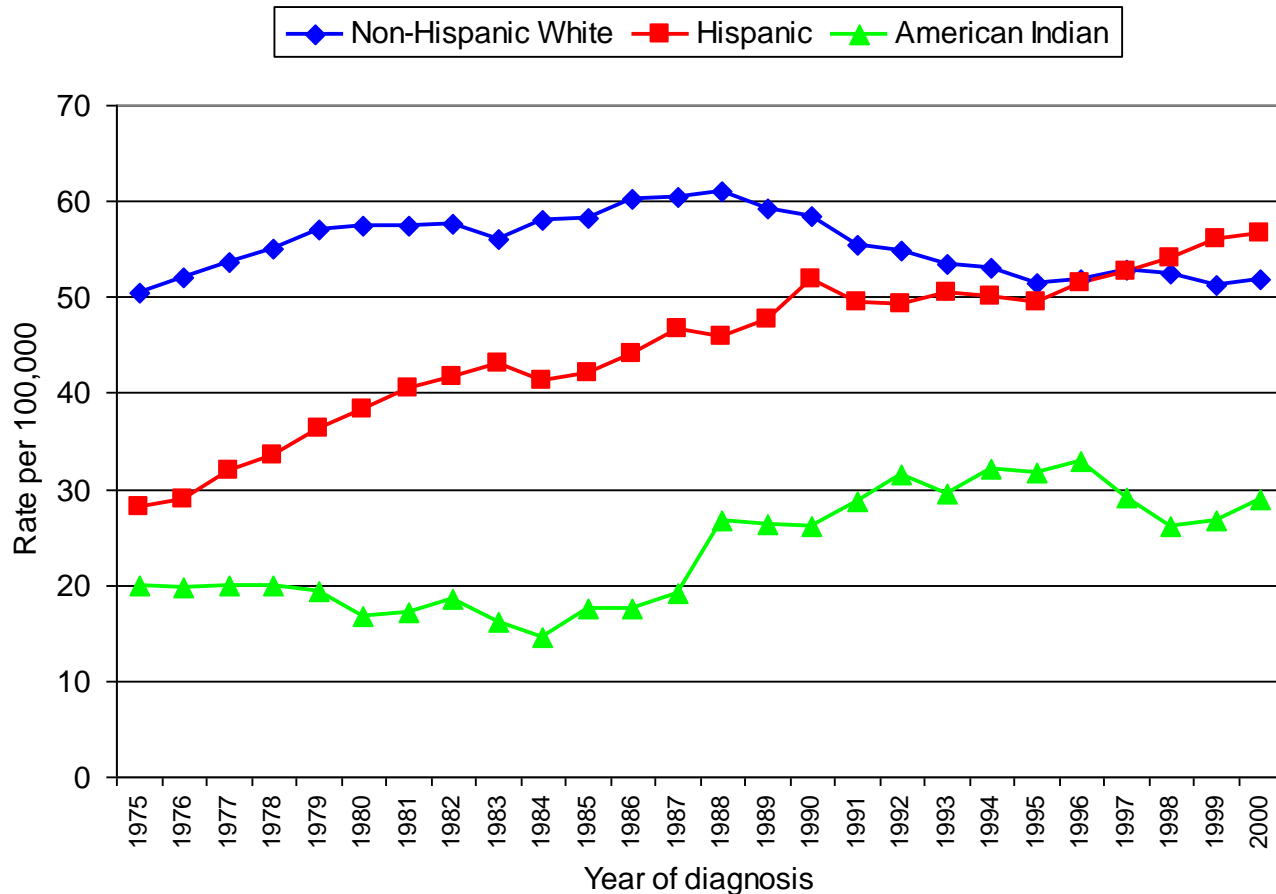
Cancer Incidence Rates for the Most Common Sites

New Mexico Males, 1997-2006

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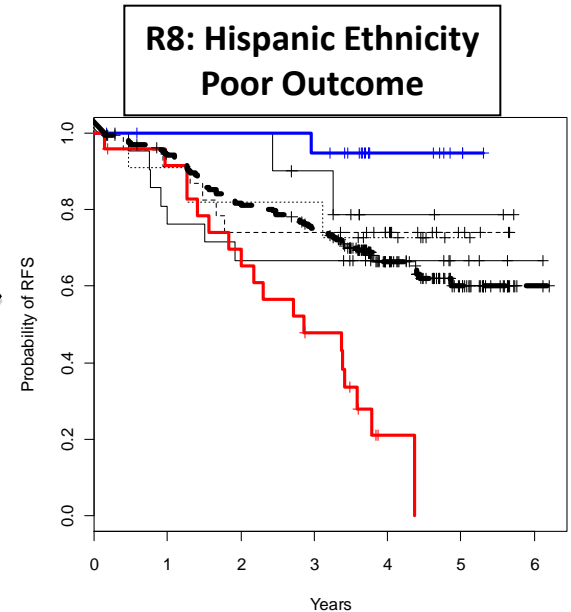
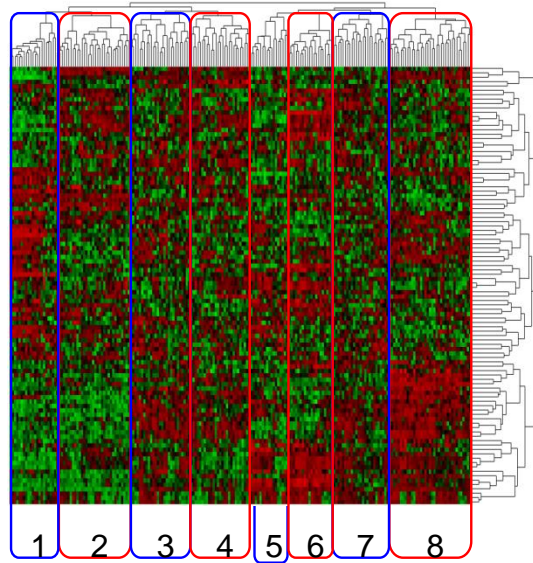
Colorectal Cancer Disparities



Increasing Colorectal Cancer Incidence in Hispanic Males
NCI P30 CCSG Supplement: Prospective GI Cancer Registry, Community-Based Research in Etiology, Barriers to Cancer Screening

Discovery of Novel Clusters and Therapeutic Targets in High Risk ALL: NCI SPECS/TARGET Programs

UNM Cancer Center, St. Jude Children's Research Hospital, COG, NCI TCGA



COG P9906
High-Risk ALL
N = 207

COG AALL0232
High-Risk ALL
N = 618

Integrated Comprehensive Genomics
Pathways Analysis
Targeted Re-Sequencing
Next Generation Sequencing

*NEJM 360(5):470,2009; Blood 115(18):1394,2010;
Blood 115(26):5312,2010; Blood 116:4874,2010*

Human Genome Sequencing Discovers Novel Mutations in High Risk ALL / Children of Hispanic and Native American Race / Ethnicity

| Library | Known fusions | Putative fusions | Key lesions |
|---------|-------------------|--------------------|---|
| HS0825 | <i>IGH@-CRLF2</i> | | JAK2 R867Q, C20ORF94, CDKN2A |
| HS1584 | | <i>EBF1-PDGFRB</i> | IKZF1 (IK6) , BTLA-CD200, EBF1, CDKN2A-B |
| HS1533 | <i>IGH@-CRLF2</i> | | IKZF1 (IK6) , CDKN2A-B, BTG1, C20orf94 |
| HS0897 | | <i>STRN3-JAK2</i> | IKZF1 deletion and L117fs , BTG1 |
| HS0894 | | <i>NUP214-ABL1</i> | IKZF1 S402fs , BTLA-CD200, PAX5, CDKN2A-B, C20orf94 |
| HS1534 | | <i>BCR-JAK2</i> | IKZF1 (IK6) , EBF1, PAX5 deletion and G24R, CDKN2A-B, BTG1 |
| HS1537 | | NONE | EBF1 |
| HS1535 | | <i>IGH@-EPOR</i> | IKZF1 (e1-5) , CDKN2A-B |
| HS1536 | | NONE | PAX5, CDKN2A-B, BTG1 |
| HS1576 | <i>IGH@-CRLF2</i> | | JAK2ins683 , IKZF1 (e1-6) , BTLA-CD200, EBF1, PAX5 V319fs, CDKN2A-B |
| SJ | | <i>NUP214-ABL1</i> | IKZF1 (IK6) , BTG1, NUP-ABL1 |

UNM Cancer Center Goals

3. Reduce cancer health disparities in New Mexico's multiethnic populations by collaborating with Native American Nations, Pueblos, Hispanic, and urban/rural communities to develop culturally appropriate community-based participatory research, education, screening, and prevention programs.

Office of Community Partnerships and Cancer Health Disparities

4. Translate our novel scientific discoveries into new diagnostic, screening, prevention, and therapeutic clinical trials..



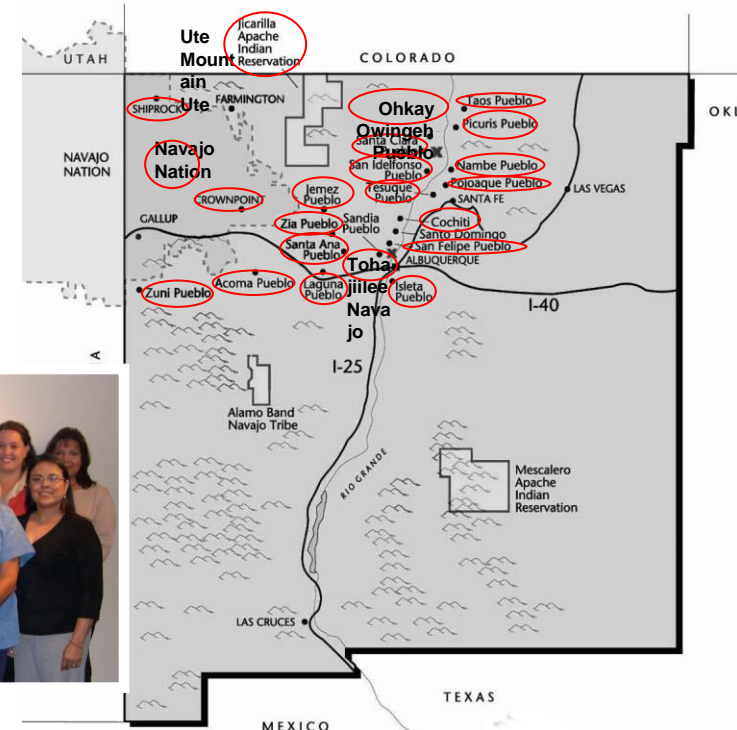
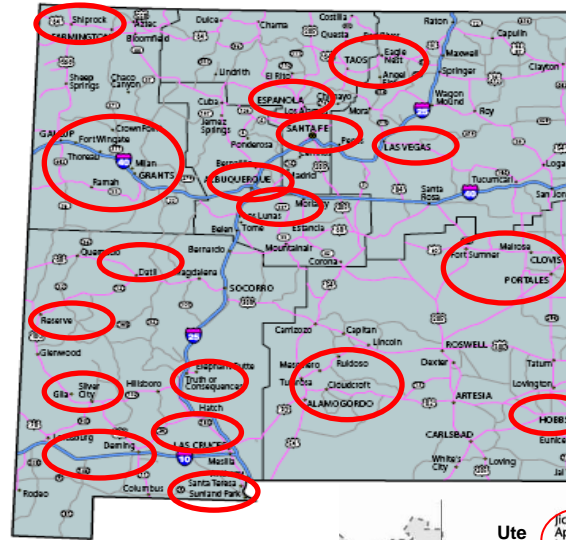
Community Partnerships for Education, Screening, and Patient Navigation

- **Cancer 101:**

Culturally-appropriate cancer education developed at UNM Cancer Center for Hispanic and Native American Communities based on NCI CIS program

- **Since 2005:**

- Trained **75** Hispanic Promotoras who have delivered the program to **441** community participants
- Trained **333** Native American Community Health Workers (CHWs) who take the program back to their communities
- Established **NACLI**: The Native American Cancer Leadership Institute



Deliver Cancer Screening Services and Patient Navigation Programs

- Mobile Mammography Project (State of NM, ACS, Nancy Floyd Haworth Foundation)
- NM Cancer Care Alliance training of patient navigators
- CDC-funded Breast and Cervical Cancer Detection Program
- Screened 900 women



Mobile Mammography Project Screening
Las Vegas, New Mexico; October, 2009

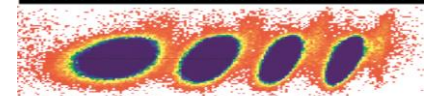
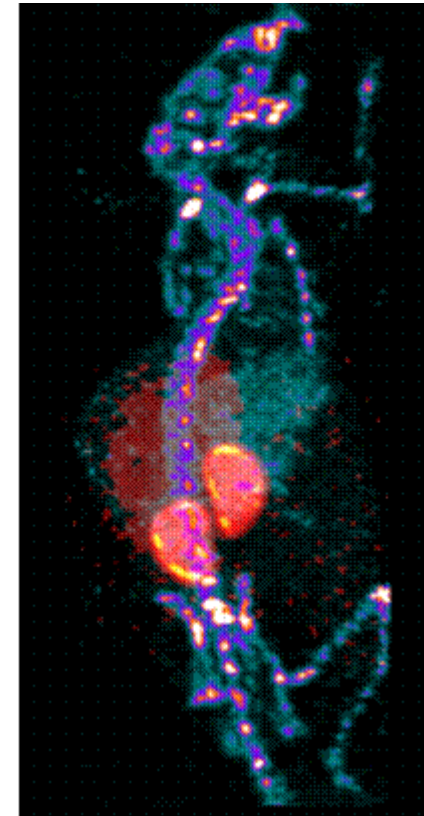
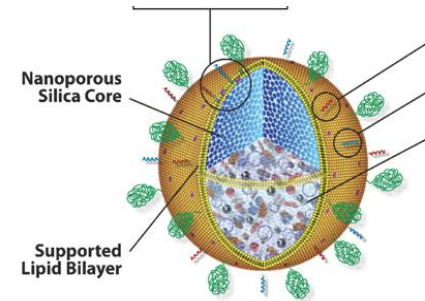


Cancer Biology & Biotechnology - Consortium Partners

Los Alamos, Sandia, and UNM Engineering



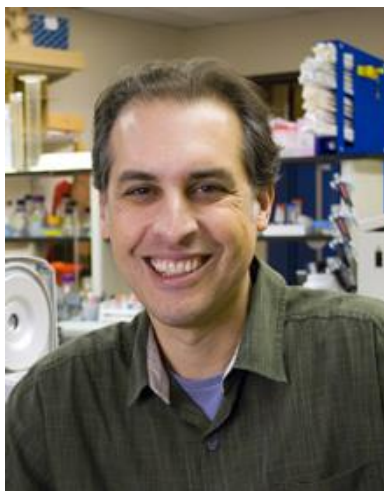
- **NIH U54MH084690: UNM Center for Molecular Discovery (\$15.5M; Sklar)**
 - 1 of 9 NIH Roadmap High Throughput Drug Discovery Centers; 30 Targets; 9 NCI Cancer Centers
- **NIH P50GM085273: NM Spatiotemporal Modeling Center (\$15.5M; Oliver)**
 - 1 of 10 NIH National Centers for Systems Biology
 - Modeling of Cancer Signaling Pathways
- **NCI Nanotechnology Alliance**
 - **U01CA151792: Nanotechnology Platform Partnership: Protocells and VLPs for Nano Therapeutics (\$1.9M; Willman, Brinker)**
 - **NCI U01CA151792: Integrative Nanoscience and Microsystems Training Grant: (\$1.9 M; Oliver, Datye)**
 - **NIH NHGRI: 3rd Generation Sequencing: The \$1000 Genome (\$2.7M; Edwards)**
 - **NIH/NSF Minority Training Grants**



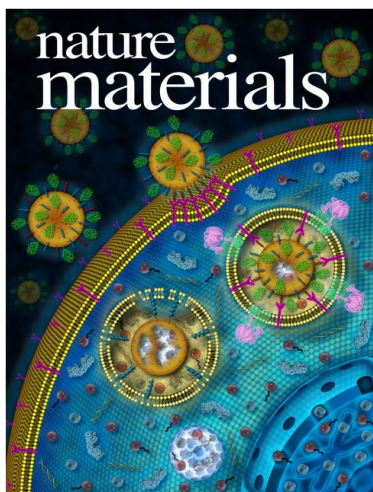
Protocells / VLPs: Targeted Delivery of Cancer Therapeutics



Jeffrey Brinker, PhD
Natl. Acad. Engineering
Sandia Fellow / UNM Engineering
New Protocell Company



Bryce Chackerian, PhD and David Peabody, PhD
New Nanotechnology Methods for Developing New Vaccines
HPV, HIV, Malaria, Cancer Vaccines
NIH / Gates Foundation Funding; New Company: AgilVax



The New Mexico Cancer Genome Project

High Throughput Human Genome Sequencing



Jeremy Edwards, PhD
National Leader in Technology
for the \$1000 Genome
Harvard U



Scott Ness, PhD
Developing New Genome
Methods / Informatics
Northwestern U

- **Initial Support for UNM Cancer Center Genomics Core, Bioinformatics, and Biostatistics: State Tobacco Settlement Funds**
- **Plan to Sequence Retrospective Tissue Cohorts from NM Cancer Patients to Discover Underlying Cancer Mutations to Develop Personalized Therapies**
- **Developing Infrastructure for Clinical Sequencing of Tumors from all Newly Diagnosed Cancer Patients at UNMCC to Develop Personalized Therapies**
- **Forming Oversight/Governance Board for Ethical, Legal, Social, Community Issues of Project**

Lung Cancer: LRRI Collaborations

- UNM Cancer Center diagnoses and treats 200-225 New Mexicans with newly diagnosed lung cancer each year
- Lung cancer is a significant cancer burden in New Mexico; it is the 2nd most common cancer in NM women (after breast cancer) and men (after prostate cancer) and the most common cause of cancer-related mortality in men and women
- While causally linked to smoking, New Mexican's may also acquire lung cancer through their involvement in uranium mining and other industrial or laboratory exposures.
- Across the nation and in New Mexico, certain forms of lung cancer are increasingly being diagnosed in younger patients, particularly females, who have never smoked, and the etiology of this form of disease is unknown.

Lung Cancer: LRRI Collaborations

- The UNM CRTC and LRRI have been leaders in the development of new cancer therapies for lung cancer and the development of new therapeutic approaches in clinical trials.
- Genome sequencing has identified new mutations in lung cancers and new and highly effective treatments are being developed; the spectrum of these mutations in New Mexicans is unknown.
- Dr. Steve Belinsky of LRRI is the co-leader of the UNM Cancer Center Lung Cancer Research Program
 - UNM Cancer Center provides tumor tissues and access to patients for LRRI investigators.
 - UNM Cancer Center provides LRRI \$140,000 annually in support of project from state and donor funds, in addition to Tobacco Settlement Funds

HB315 – Speaker Ben Lujan Memorial

- HB315: \$1 million dollars (citing tobacco settlement funds) dedicated for lung cancer research and prevention.
- Proposal – Cancer Center Expansion Request:
 - New Faculty Hires: 1) Physician Lead of Multidisciplinary Lung Cancer Program; 2) Scientific Leader for Lung Cancer in the New Mexico Cancer Genome Project
 - Research Program Infrastructure: Staff and Supplies to Sequence 200 Tumors Annually
 - Lung Cancer Clinical Trials: Support for Early Phase Clinical Trials for Testing New Lung Cancer Treatments
 - Lung Cancer Collaborative Projects with New Mexico Universities and Foundations

UNM Cancer Center Goals

5. Provide access to outstanding cancer treatment for all New Mexicans through the UNM CC and the UNM Statewide Cancer Care Network, improving access to quality care through partnerships with community health systems and providers.

State's Largest Team of Cancer Physicians/Specialists: 85

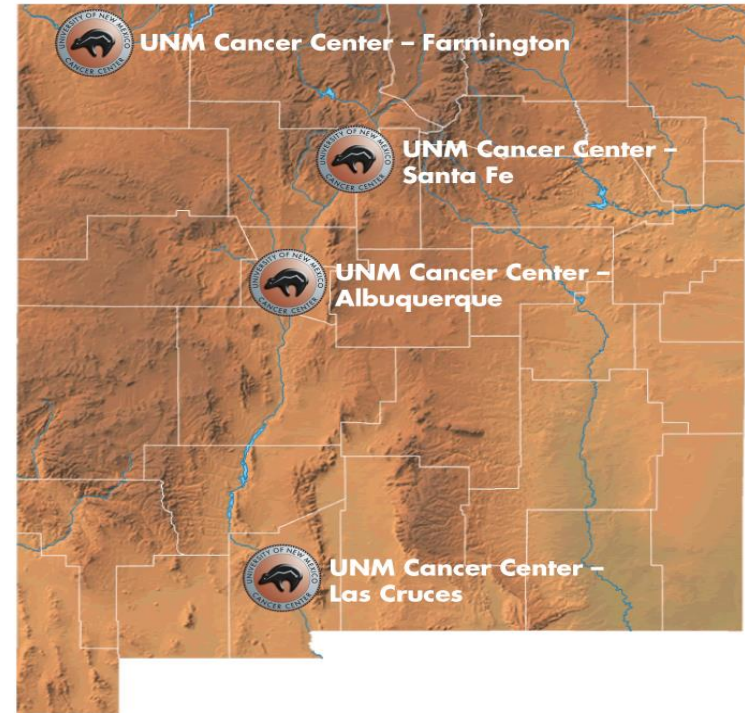
Providing an Unparalleled Level and Quality of Cancer Care

6. Increase access and participation of New Mexicans in cancer clinical investigations and cancer clinical trials, facilitated by a UNM-community statewide collaborative clinical trials network:

The New Mexico Cancer Care Alliance.



UNM Cancer Center Goals: Community Partnership

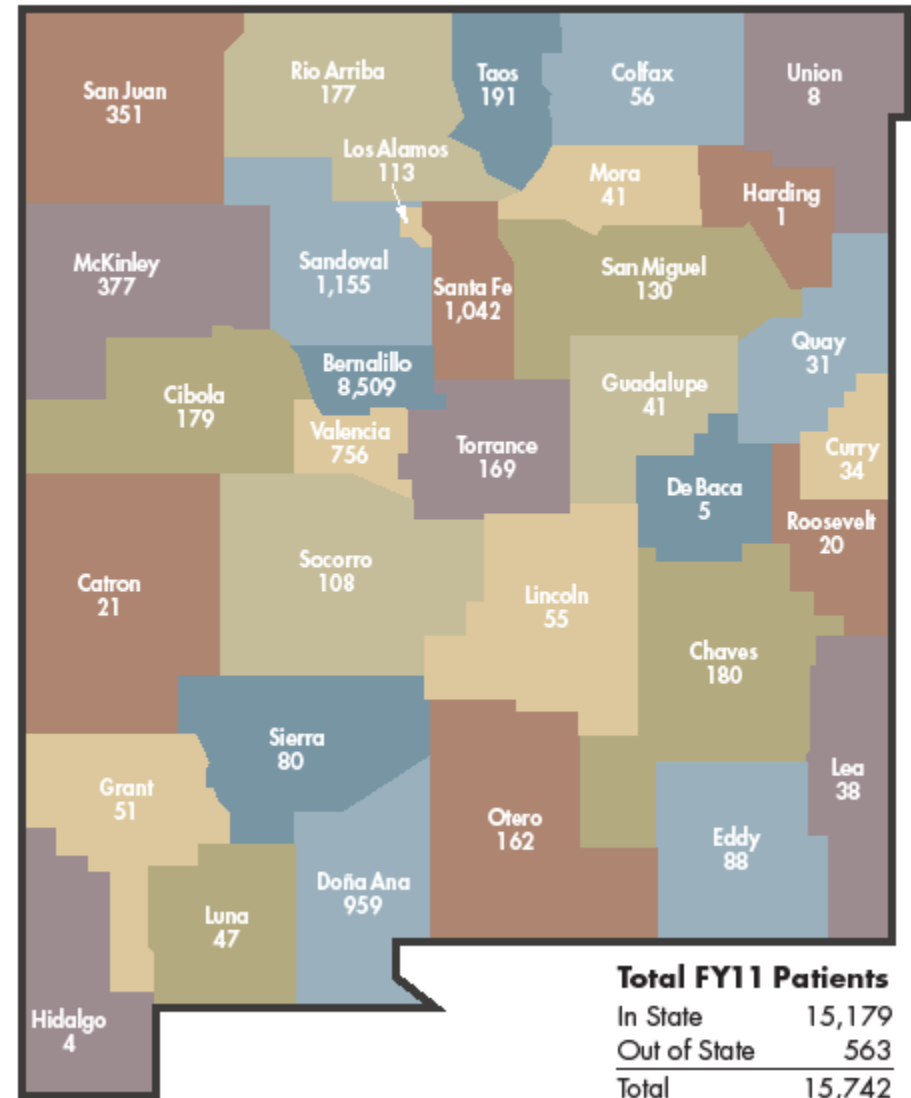


- Increase access to quality cancer care statewide
- Reduce cancer health disparities in New Mexico's multiethnic and rural populations through community partnerships
- Provide access to new cancer treatments through a statewide cancer clinical trials network: *The New Mexico Cancer Care Alliance*

UNM Cancer Center Goals – Clinical Care

- Provide access to an unparalleled level of comprehensive, fully integrated cancer diagnosis and treatment for all New Mexicans
- 85 Oncology specialty physicians (MO, RO, Surgery, GYN, Imaging)
- 308 Clinical Staff (442 Total Staff)
- Providing cancer treatment to 65% of adults and 100% of children affected by cancer in NM
 - FY11: 15,742 patients in >120,000 Ambulatory Visits
 - 44% of patients from outside of Bernalillo County
 - 52% of patients were racial / ethnic minorities
 - 14-20% Uninsured
- HSC's Highest Press-Gainey Scores

Cancer Patients Served by County at the UNM Cancer Center
FY 2011



Goals and Challenges for the Next 5 Years

2015 GOALS:

1. To successfully renew our NCI Designation and increase our federal funding
2. To become an NCI Designated **Comprehensive** Cancer Center
3. To complete our clinical treatment facility (2nd , 4th Floors; Food Service)
4. To continue to build our statewide cancer care partnership and community health networks

